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United States Environmental Protection Agency
Region 10, Air & Radiation Division
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Permit Number: R10TNSR01802
Issued: DRAFT
Effective: DRAFT
AFS Plant I.D. Number: 16-009-00001

Permit Analysis

Minor New Source Review Permit
Permit Revision No. 2

Permit Writer: Dan Meyer

PotlatchDeltic Land and Lumber, LLC – St. Maries Complex

Coeur d'Alene Reservation
St. Maries, Idaho

Purpose of Permit and Permit Analysis

Title 40 of the Code of Federal Regulations, 49.151-165, establish a federal new source review program in Indian Country that, among other things, establishes (a) a preconstruction permitting program for new and modified minor stationary sources and minor modifications at major sources to meet the requirements of Section 110(a)(2)(C) of the Clean Air Act; (b) a mechanism for otherwise major sources (including major sources of hazardous air pollutants) to voluntarily accept restrictions on potential to emit to become synthetic minor sources; and (c) a mechanism for case-by-case maximum achievable control technology determinations for those major sources of HAPs subject to such determinations under Section 112(g)(2) of the Clean Air Act.

This document, the permit analysis, fulfills the requirements of 40 CFR 49.157(a)(3) and (4) by describing the reviewing authority's analysis of the application. Unlike the minor new source review permit, this Permit Analysis is not legally enforceable. The Permittee is obligated to comply with the terms of the permit. Any errors or omissions in the summaries provided here do not excuse the Permittee from the requirements of the permit.

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1. Introduction and Project Summary

On March 11, 2020, EPA Region 10 received an application from PotlatchDeltic Land and Lumber, LLC (PotlatchDeltic or Permittee) requesting revisions to PSD permit R10PSD00102 and tribal minor NSR permit R10TNSR01801 authorizing construction of lumber dry kiln LK-6. Region 10 is simultaneously processing the requested changes to both permits, but this Permit Analysis only addresses the changes related to the minor NSR permit. Table 1-1 lists in chronological order permit actions related to LK-6 along with construction and startup milestones. After receiving additional information from PotlatchDeltic upon request, Region 10 notified PotlatchDeltic that the application was complete on April 10, 2020.

Table 1-1 – LK-6 Permitting Chronology and Startup Milestones

Date	Action
06/21/19	Region 10 issues PSD permit R10PSD00100 and minor NSR permit R10TNSR01800 (referred to as the "June 2019 permit" where the context requires), authorizing construction and operation of LK-6
07/22/19	PotlatchDeltic commences construction of LK-6
10/10/19	Region 10 issues R10PSD00101 and minor NSR permit R10TNSR01801 (referred to as the "October 2019 permit" where the context requires), revising June 2019 permits
10/16/19	PotlatchDeltic starts operating LK-6
10/21/19	Region 10 issues R10PSD00102, revising the PSD permit a second time
03/11/20	PotlatchDeltic submits application to revise PSD and minor NSR permits
04/08/20	Region 10 indicates to PotlatchDeltic that 03/11/20 application is incomplete
04/09/20	PotlatchDeltic submits update to application to revise PSD and minor NSR permits
04/10/20	Region 10 determines application, together with update, is complete
06/09/20	PotlatchDeltic submits update to minor NSR portion of application

PotlatchDeltic is proposing the following three changes (Requests) to both the PSD and tribal minor NSR permits:

1. Revise Kiln 6 operating temperature limits to use average temperature values measured across all kiln zones as bases;
2. Incorporate EPA's updated lumber dry kiln VOC emission factors; and
3. Revise the ten-day written deviation notification requirement to apply to limited mNSR and PSD permit conditions.

Through the PSD and tribal minor NSR permitting actions, Region 10 is addressing these three requests. Requests 1 and 3 are common to both the PSD and tribal minor NSR permits. Request

2 is unique to the PSD permit. PotlatchDeltic also requested other changes to the minor NSR permit that they have since withdrawn.

In addition to the revisions to address the requested permit changes, Region 10 is correcting the plant/process description in the permit as it relates to LK-6, adding a "Permit History" section at the beginning of the permit to foster clarity, deleting baghouse testing conditions that have been completed, and updating PCWR-PM-SH and PCWR-PM-SD PM2.5 EF's and daily/annual emission limits based on the recent baghouse BH-2 and BH-3 source test results.

2. Analysis of Permit Revision Requests

This is an application to revise the permit. The kiln is still considered a new emission unit as provided in 40 CFR 52.21(b)(7), and there are no physical changes or changes in the method of operation being requested in the permit application. The LK-6 project was originally and remains a major modification for VOC and a minor modification for CO, NO_X, PM, PM10, and PM2.5. See Appendix B to the June 21, 2019 Permit Analysis for the Permittee's calculations for the emissions increase for the LK-6 project.

Request 1 – Revise Kiln 6 operating temperature limits to use average temperature values measured across all kiln zones as bases

Condition 3.2 of the October 2019 minor NSR permit and Condition 3.3 of the October 2019 PSD permit limit the temperature of the air exiting a load of lumber within a zone of the kiln to no more than 245°F. Because (a) higher drying temperatures result in higher VOC emissions, and (b) PotlatchDeltic stated in its application that the maximum temperature of air exiting the lumber would be no more than 245°F, Region 10 established the load-specific, zone-specific 245°F BACT limit. The application did not qualify its 245°F as a kiln-wide average value and the applicant did not request the permit to be changed during the public comment period to address the discrepancy. Shortly after LK-6 startup, PotlatchDeltic applied too much heat to a load in at least one zone of the kiln to remain in compliance with both permits' 245°F BACT/minor NSR control technology review limits. In identifying the root cause and corrective action, the Permittee stated in its February 28, 2020 annual report, "The monitoring condition does not match kiln management system. PotlatchDeltic discussed changes to permit term to match kiln management system."

PotlatchDeltic is requesting Region 10 to replace LK-6 245°F load-specific, zone-specific limit on the maximum temperature of the air exiting a load of lumber with a 245°F kiln-wide average limit. Region 10 is granting this request to more accurately reflect actual operation of the kiln management system. The 245°F value is established based upon the maximum set point temperature associated with the drying schedules PotlatchDeltic is proposing to implement at LK-6. To assure compliance with the 245°F limit, it is appropriate for the permit to restrict PotlatchDeltic to using drying schedules with maximum set point temperatures less than or equal to 245°F. The associated changes to Conditions 3.3 (formerly 3.2) and 4.2.7.1 (formerly 4.3.6) and creation of new Conditions 3.2 and 4.2.6 addressing the Permittee's request are explained in more detail in Section 5 of this Permit Analysis.

In changing to a kiln-wide average temperature limit, it will still be necessary for PotlatchDeltic to continue to address high temperatures in individual zones in order to identify system

malfunctions and avoid over-drying their lumber. The computerized kiln management system achieves this as described below.

> *The temperature data from individual kiln zones are used only to calculate the kiln-wide average temperatures, except for a high-temperature alarm used to alert the kiln operator of a kiln zone temperature that is greater than 20 degrees above the drying schedule set point.[1] This alarm is intended to identify a malfunctioning steam valve stuck in the open position or, in the worst-case scenario, a fire in the kiln. After receiving a high-temperature alarm, the kiln operator will check the steam valves associated with the indicated kiln zone and manually close the malfunctioning steam value. After the batch of lumber is dried, the malfunctioning steam valve is checked and, if necessary, replaced… The Wellons kiln management software produces a record of high-temperature alarm conditions, and PotlatchDeltic maintains an operation and maintenance manual (O&M) manual for Kiln 6 with procedures for responding to a high-temperature alarm... PotlatchDeltic has incorporated the procedures to be followed by kiln operators during a high-temperature alarm scenario into the O&M manual for Kiln 6.*

[1] The standard high temperature alarm was set by Wellons at 20 degrees temperature differential (actual compared to drying schedule).

To assure that PotlatchDeltic is identifying and responding to high-temperature alarms in a manner that minimizes emissions, Region 10 is revising the permit to establish a new BACT work practice requirement. Specifically, the permit will require the computerized kiln management system to be used to identify "hot spots" and alert the operator of their occurrence, and the operator will be required to take corrective action when the actual temperature is more than 20°F above the drying schedule setpoint. At the beginning of the drying schedule, the temperature inside the kiln may be greater than the drying schedule's initial set point due to the ambient (outside) temperature. In those instances, an exceedance of the set point temperature by any amount does not indicate that the kiln is malfunctioning or over-drying lumber. The permit, therefore, does not require corrective action be taken in those instances. The creation of new Conditions 3.4, 4.2.7.2 and 5.5.1 addressing the Permittee's request are presented in detail in Section 5 of this Permit Analysis.

Request 3[1] – Revise the ten-day written deviation notification requirement to apply to limited minor NSR and PSD permit conditions

PotlatchDeltic is requesting Region 10 to narrow the applicability of the 10-day written notice deviation reporting requirement to deviations with excess emissions that continue for more than two hours. Condition 5.2 of the October 2019 permit requires that a written notice be submitted within ten working days of the occurrence of all deviations. In contrast, 40 CFR 71.6(a)(3)(iii)(B)(4) only requires a ten-day written notice of deviations associated with excess emissions continuing beyond a defined duration. At this time, Region 10 can identify no compelling reason to have the minor NSR permit depart from Part 71 program default deviation reporting requirements. Region 10, however, is clarifying that exceedances of LK-6 temperature and lumber moisture content limits can result in emissions in excess of permit requirements (excess emissions). The changes to Condition 5.2 and creation of new Conditions 5.2.2.2 and

[1] As discussed above, Request 2 relates solely to the PSD permit.

5.2.3 addressing the Permittee's request are presented in detail in Section 5 of this Permit Analysis.

3. Revising the Permit for Cause

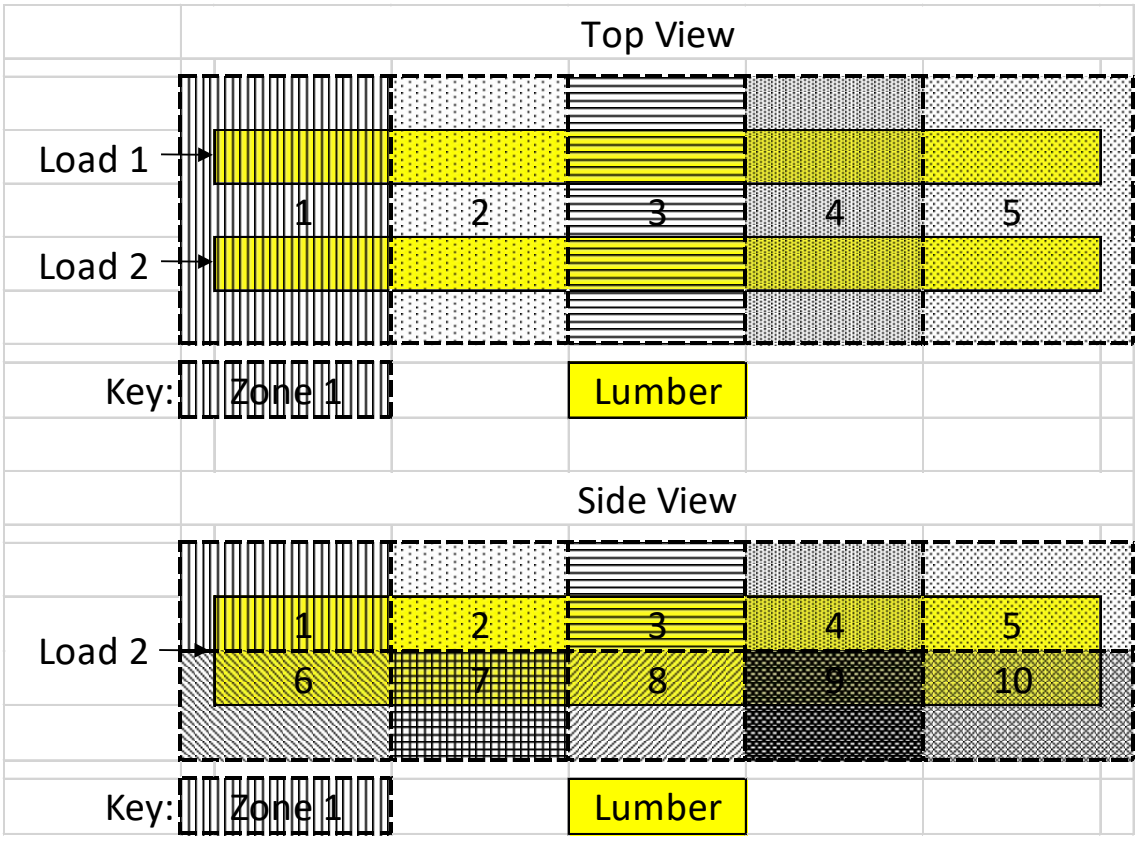
Condition 2.6 of the October 2019 permit states that Region 10 may revise the permit for cause. The tribal minor NSR rule includes as examples of "cause" a permit that contains a material mistake or fails to assure compliance with applicable requirements. 40 CFR 49.159(e). Region 10 is relying on this authority to revise and clarify certain aspects of the October 2019 minor NSR permit. In addition to the discussion below, the specific permit wording changes are presented in Section 5 of this Permit Analysis.

Kiln Heating Zones

Section 1 of the October 2019 permit states, "The kiln is designed with ten heating zones arranged along the length of the kiln from the entrance to the exit wherein the drying process can be separately controlled." The Permit Analysis accompanying the June 2019 permit presented an incorrect illustration of the kiln and its drying zones. Since issuance of the June 2019 permit and the subsequent revision in October 2019, Region 10 has come to understand through communication with PotlatchDeltic and independent analysis that both the description in the permit and the illustration in the Permit Analysis are incorrect.

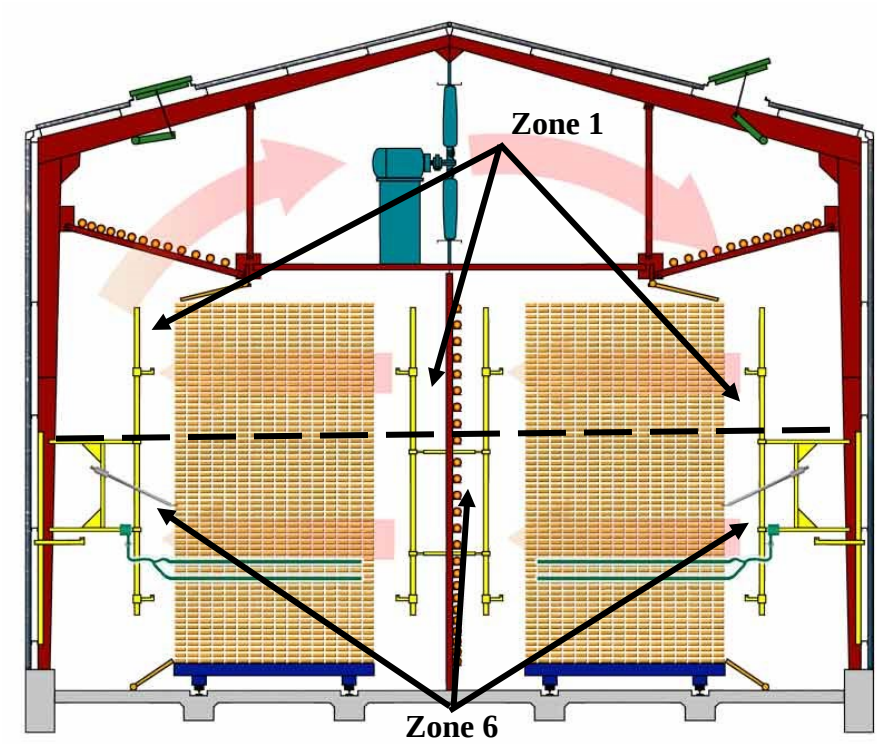
The following illustration of the top and side view of LK-6 correctly present the ten zones within the lumber dry kiln:

Figure 3-1 – LK-6 Zones



The following illustration of the end view of LK-6 presents Zone 1 and 6 separated in the illustration by a horizontal dashed line. Each zone is depicted as employing four thermocouples; one on either side of the two loads.

Figure 3-2 – Placement of Thermocouples in LK-6 Zones[2]



End View

The changes to the text in Section 1 of the permit explaining the layout of the zones and placement of thermocouples are presented in detail in Section 5 of this Permit Analysis.

In addition, Region 10 is inserting the term "batch" into the first paragraph of Section 1 of the permit to more clearly describe LK-6.

Permit History

Given the number of permit revisions to date, Region 10 is adding a "Permit History" section at the beginning of the permit to foster clarity.

Kiln Capacity

The physical capacity of LK-6 listed in the permit is being increased by approximately 1% to 282,426 bf because PotlatchDeltic reported on multiple occasions batches of that volume in its February 28, 2020 annual report to Region 10.

Revised PM2.5 Emission Limits and Emission Factors

From 2016 through 2018, air quality in the vicinity of the PotlatchDeltic facility was 89 and 78 percent of the 24-hour and annual PM2.5 NAAQS, respectively. Because there was reason to be

[2] http://www.wellons.com/trackkilns.html

concerned that operation of the project would cause or contribute to a violation of the 24-hour and annual PM2.5 NAAQS without appropriate emission limitations, Region 10 requested PotlatchDeltic to provide an AQIA for primary PM2.5 as provided in 40 CFR 49.151(e)(4) and 154(d)(1) as part of the application for the June 2019 permit.

The AQIA supporting the June 2019 permit demonstrated that the NAAQS would be protected if the Permittee limited its daily and annual emissions to the levels specified in the permit, including the PM2.5 emission limits for PCWR-PM-SH (controlled by BH-2) and PCWR-PM-SD (controlled by BH-3) in Tables 3-1 and 3-3. Such a demonstration typically includes modeling the source at those "allowable" emission rates and adding their impacts to an ambient background concentration not influenced by the source's current emissions. If the resultant ambient concentrations are less than the NAAQS, the AQIA has demonstrated that the project will not cause or contribute to a NAAQS violation. The AQIA supporting the June 2019 permit, however, used a different approach based on an ambient background concentration influenced by the source's existing emissions for the reasons explained in Section 2.1 of Appendix C of the June 2019 Permit Analysis. And in order to avoid "double counting" the impacts from the source's existing emissions, the difference between proposed allowable emissions and actual emissions was modeled as explained in Section 3.4 of Appendix C of the June 2019 Permit Analysis. See Appendix D of the June 2019 Permit Analysis for calculation of the emission rates that were modeled. The modeled impacts were added to the background concentration, and the resultant ambient concentrations were determined to be less than the NAAQS. The resultant annual concentration that included existing source emissions (in the form of a background concentration) and proposed project emissions was 11.78 µg/m3, just under the 12 µg/m3 annual PM2.5 NAAQS, and the resultant 24-hour concentration was 34.79 µg/m3, just under the 24-hour 35 µg/m3 PM2.5 NAAQS.

As illustrated in Appendix D to the June 2019 Permit Analysis, permit or "allowable" emission limits to assure protection of the NAAQS for existing emission units were calculated by adding the estimated pre-project actual emissions to modeled emissions. Each unit's estimated pre-project actual emissions reflect its estimated contribution to the ambient background concentration used in the AQIA. As provided in PotlatchDeltic's application for the June 2019 permit, baghouses BH-2 and BH-3 actual PM2.5 emissions (0.8229 and 0.7406 lb/hr, respectively) were estimated based upon the assumption that one-half of the RM5 PM emissions measured during previous testing of these emission units constituted PM2.5.

Because Region 10 was concerned about the representativeness of the original EFs used in the AQIA and required by the permit, Region 10 required, in Condition 4.2 of the June 2019 permit, PotlatchDeltic to perform emissions testing to develop emission factors that reflect representative operating conditions for PCWR-PM-SH and SD and the two boilers. In March 2020, PotlatchDeltic conducted RM201A testing of BH-2 and BH-3 to measure PM2.5 emissions and satisfy the permit requirement.[3] That testing showed that BH-2 and BH-3 emit roughly one-fifth (0.1438 and 0.1505 lb/hr of PM2.5, respectively[4]) of the rates assumed at the time the June 2019

[3] While RM5 measures particle matter with an aerodynamic diameter up to approximately 50 micrometers, RM201A measures only a subset with an aerodynamic diameter no greater than 2.5 micrometers.

[4] Note that these emission rates reflect collection of PM2.5 at the RM201A method detection limit because the PM2.5 collected was reported to be approximately one-tenth the method detection limit. Moreover, these lower emission rates were measured while processing approximately three times more lumber than was processed during the RM5 testing upon which the application's estimates were based.

permit was issued. The emission rates from the March 2020 testing are equivalent to 0.00263 and 0.00229 lb/mbf, respectively.[5] As provided in Conditions 3.8, 3.9 and 3.11 of the permit, the revised EFs from the March 2020 emission testing are now used to determine compliance with the emission limits even without a permit revision. Region 10 is therefore revising the permit to incorporate the new EFs into the permit. See the revised EF and emission limits for PCWR-PM-SH and SD in Tables 3-1 and 3-3 of the revised permit.

Because the PM2.5 emissions from BH-2 and BH-3 measured during the March 2020 source testing are substantially lower than estimated at the time of issuance of the June 2019 permit, the existing emission limits for these units do not ensure protection of the PM2.5 NAAQS when the emission factors from the March 2020 testing are used to calculate emissions for comparison to the emission limits. This results from the modeling approach that supported issuance of the June 2019 permit. The AQIA modeled an increase in PM2.5 emissions from the project of 3.13 and 2.81 lb/day for BH-2 and BH-3, respectively. Based on the March 2020 source tests, the pre-project actual emissions from these emission units (contributing to the background concentration) were 3.40 and 2.96 lb/day, respectively, and not 16.62 and 14.96 lb/day as was assumed in the AQIA. This means that the emission limits, based on the AQIA, should be 6.53 (3.13 + 3.40) and 5.77 (2.81 + 2.96) lb/day for PCWR-PM-SH and SD, respectively, and not 19.75 (3.13 + 16.62) and 17.77 (2.81 + 14.96) lb/day. To ensure the permit continues to assure compliance with applicable requirements, Region 10 is correcting the daily and annual allowable emission limits for these emission units to reflect operation of the PotlatchDeltic facility at the time it applied for the June 2019 permit for LK-6 and to protect the PM2.5 NAAQS. See Appendix A of this Permit Analysis for the calculations supporting the revised 24-hour and annual PM2.5 emission limits.

As mentioned earlier, the June 2019 permit also required PM2.5 emission testing to derive new emission factors for PB-1 and PB-2. That testing has not yet been performed. Upon receipt of the test report, Region 10 intends to review the resultant test-derived emission factors and consider whether the emissions estimate used in the modeling to support issuance of the June 2019 permit is sufficiently representative of actual emissions at the time the permit was issued. If it is not, a permit revision of the PM2.5 emission limits for PB-1 and PB-2 may be needed to assure compliance with the PM2.5 NAAQS. We assume the June 2019 permit-required testing best represents emissions during the baseline period. Once the June 2019 permit-required testing is completed, any future required testing would be used to verify and, if necessary, revise the EF because the EF is used to determine compliance with the limit.

Completed Testing

Condition 4.2 of the October 2019 permit (requirement to test BH-2 and BH-3) is being deleted as it is now obsolete with testing having now been completed.

New Cyclone

PotlatchDeltic notified Region 10 on October 16, 2020 that a cyclone (receiving planer shavings) has been installed upstream of BH-2, BH-3 has been moved approximately 30 meters southwest of the location at which it was modeled, and BH-3 stack exit is approximately 48 feet above

[5] The form of the EF is changing from “lb/hr” to “lb/mbf” to improve accounting for emissions generated by planing activity. The rate at which lumber enters the planer is variable (not constant), and emissions would be expected to increase with higher throughput.

ground level as opposed to 38 feet as modeled. Based upon PotlatchDeltic's October 16, 2020 submittal, the emission unit description for PCWR-PM-SH in Table 1-1 of the permit has been updated to reflect the presence of a planer shavings cyclone upstream of BH-2.

BH-3 updated UTM coordinates are 531398.1 m X and 5241043.8 m Y. Table 3-1 below, based upon information presented to Region 10, compares BH-2 and BH-3 stack exit exhaust height, temperature and velocity measured during March 2020 source test to values used in modeling supporting the June2019 permit.

Table 3-1 – Actual vs Modeled Values for BH-2 and BH-3 Stack Parameters

Baghouse ID	Data Source	Height (m)	Temperature (K)	Velocity (m/s)
BH-2	Model	11.0	294.3	15.8
	2020 Test	11.0	293.7	15.2
BH-3	Model	11.6	294.3	14.3
	2020 Test	14.6	298.7	16.1

BH-3 stack being 10 feet taller than was modeled would likely result in some decrease to impacts at all locations. Moving BH-3 approximately 30 meters southwest of the original position modeled would likely cause only a small, unsubstantial change to impacts on the fenceline. BH-2 and BH-3 stack velocity and temperature are only slightly different than modeled and the differences would likely only cause a small, unsubstantial change to impacts. Region 10 therefore concludes that the changes noted in Table 3-1 are highly unlikely to have resulted in increased project impacts and that the modeling supporting June 2019 permit remains conservatively representative in these respects.

4. Additional Analyses

EPA Trust Responsibility. As part of the EPA Region 10's direct federal implementation and oversight responsibilities in Indian Country, Region 10 has a trust responsibility to each of the 271 federally recognized Indian tribes within the Pacific Northwest and Alaska. The trust responsibility stems from various legal authorities including the U.S. Constitution, Treaties, statutes, executive orders, historical relations with Indian tribes and, in this case, the 1873 Executive Order and subsequent series of treaty agreements. In general terms, the EPA is charged with considering the interest of tribes in planning and decision making processes. Each office within the EPA is mandated to establish procedures for regular and meaningful consultation and collaboration with Indian tribal governments in the development of EPA decisions that have tribal implications. Region 10's Air and Radiation Division has contacted the Tribe to invite consultation on the revisions to this minor NSR permit and has maintained ongoing communications with Tribal environmental staff throughout the permitting process.

Statutory and Policy Requirements. Given the limited scope of this permit revision, Region 10's findings related to the Endangered Species Act, National Historic Preservation Act and Environmental Justice Policy remain unchanged from those reached in support of issuance of June 2019 minor NSR permit authorizing construction of LK-6.

5. Permit Changes

The changes to the permit are explained below in the order that the permit is organized:

Permit Section: Permit History
Permit Section 1: Source Information and Project Description
Permit Section 2: General Requirements
Permit Section 3: Emission Limitations and Work Practice Requirements
Permit Section 4: Monitoring and Recordkeeping Requirements
Permit Section 5: Reporting Requirements

All changes are transcribed below. New text appears in underlined font, deleted text appears in ~~strikeout~~ font. To the extent necessary, permit conditions have been renumbered to accommodate proposed revisions to the permit.

Permit Section – Permit History

As discussed in Section 3, Region 10 is creating a new section of the permit as follows:

Permit Action Date	*Permit Number*	*Permit Action Description*
06/21/2019	*R10TNSR01800*	*Original minor NSR permit for LK-6*
10/10/2019	*R10TNSR01801*	*Revision No. 1 – revised LK-6 lumber moisture monitoring*
draft	*R10TNSR01802*	*Revision No. 2 – revised LK-6 temperature limit, emission limits and emission factors for PCWR-PM-SH and PCWR-PM-SD, LK-6 temperature and moisture monitoring, deviation reporting and source description*

Permit Section 1 – Source Information and Project Description

As discussed in Section 3, Region 10 is inserting the term "batch" into the first paragraph of Section 1 of the permit as follows:

> *This permit authorizes construction of a new indirect steam-heated batch lumber dry kiln and the emission increases resulting from operation of the kiln and associated existing emission-generating activities at the St. Maries Complex.*

As discussed in Section 3, Region 10 is changing the second paragraph of Section 1 of the permit as follows:

> *The kiln is designed with ten heating zones ~~arranged along the length of the kiln from the entrance to the exit~~ wherein the drying process can be separately controlled. The length of the kiln is segmented into five cross-sectional areas. The top of each cross-sectional area is one heating zone, and the bottom another. Four thermocouples are employed per zone, and at any one time two thermocouples are measuring the temperature of the air entering the loads (one thermocouple per load) and the other two are measuring the temperature of the air exiting the loads (one thermocouple per load).*

To make the format of Table 1-1 consistent with the format typically used in other Region 10 permits, Region 10 is changing the title and third column of Table 1-1 of the permit as follows:

Table 1-1 – Emission Units and Control Devices

EU ID	***Emission Unit Description***	***PM/PM10/PM2.5 Control Device~~/Work Practices~~****
New (Proposed) Emission Generating Activities		
LK-6	*Lumber Dry Kiln No. 6. Dual-track, ~~280,000~~282,426 board foot per batch, indirect steam-heated lumber dry kiln*	*None~~Wood species restriction, air temperature ≤ 245°F, final lumber moisture content ≥ 13% (dry basis), operation and maintenance requirements~~*
PCWR-PM-SH	*Exhaust from cyclone (receiving planer shavings) is ~~Planer Shavings~~pneumatically conveyed to baghouse BH-2.*	*Donaldson/Torit 276-RF10 baghouse BH-2 with cyclone pre-cleaner design, installed 1996*

* Use of the listed control devices ~~and work practices~~ is required by this permit.

In the second column of Table 1-1 for LK-6, Region 10 is updating the physical capacity of LK-6 to 282,426 bf. In the second column of Table 1-1 for PCWR-PM-SH, Region 10 is updating the emission unit description to reflect that PotlatchDeltic recently installed a cyclone upstream of BH-2.

Permit Section 2 – General Requirements

No revisions.

Permit Section 3 – Emission Limitations and Work Practice Requirements

Region 10 is revising Section 3 of the permit in response to the Permittee's Request 1 as follows.

Permit Condition 3.2:

> *The Permittee shall not dry any lumber using a drying schedule with a maximum set point temperature of heated air that exits a load of lumber exceeding 245°F.*

Permit Condition 3.3 (formerly 3.2):

> *The highest 60-minute kiln-wide average dry bulb temperature of heated air that exits~~exiting~~ ~~each~~a load of lumber ~~in each zone of the kiln~~as measured, calculated and recorded pursuant to Condition ~~4.1.4~~4.2.7.1 shall not exceed 245°F.*

Permit Condition 3.4:

> *The Permittee shall take corrective action to return the actual temperature to the set point temperature if the instantaneous dry bulb temperature of heated air that exits any load of lumber in any zone of the kiln as measured pursuant to Condition 4.2.7.2 exceeds the set point temperature in the drying schedule by more than 20°F. This condition applies only when the drying schedule's set point temperature is greater than the ambient (outside) temperature.*

To provide clarification, Region 10 is revising Permit Condition 3.5 as follows:

Permit Condition 3.5 (formerly 3.3):

> *The lowest, average, kiln-wide moisture content for each batch of lumber dried, as measured, calculated and recorded pursuant to Condition ~~4.3.7~~4.2.8, shall not be less than 13%, dry basis.*

As discussed in Section 3, Region 10 is revising Tables 3-1 and 3-3 (part of Permit Conditions 3.8 and 3.9, respectively) of the permit as follows to update EF and emission limits based upon March 2020 BH-2 and BH-3 testing and to update the associated monitoring reference given the change in the units of the EF.

Permit Condition 3.8 (formerly 3.6):

Table 3-1 – Daily PM2.5 Emission Limits, pounds per day

Emission Unit	***Emission Limit***	***Emission Factor, units***	***Operation***
PCWR-PM-SH	*~~19.75~~6.53*	*~~0.82290~~0.00263 ~~lb/hr~~lb/mbf*	*Condition ~~4.6.1 or 4.6.4, as applicable~~4.5.4*
PCWR-PM-SD	*~~17.77~~5.77*	*~~0.74060~~0.00229 ~~lb/hr~~lb/mbf*	*Condition ~~4.6.1 or 4.6.4, as applicable~~4.5.4*

Permit Condition 3.9 (formerly 3.7):

Table 3-3 – Annual PM2.5 Emission Limits, tons per year

Emission Unit	***Emission Limit***	***Emission Factor, units***	***Operation***
PCWR-PM-SH	*~~3.08~~1.01*	*~~0.82290~~0.00263 ~~lb/hr~~lb/mbf*	*Condition ~~4.6.1 or 4.6.4, as applicable~~4.5.4*
PCWR-PM-SD	*~~2.77~~0.90*	*~~0.74060~~0.00229 ~~lb/hr~~lb/mbf*	*Condition ~~4.6.1 or 4.6.4, as applicable~~4.5.4*

Permit Section 4 – Testing, Monitoring and Recordkeeping Requirements

Region 10 is revising Section 4 of the permit in response to Permittee's Request 1 as follows.

Permit Condition 4.2.6:

> *The maximum set point temperature (°F) specified in the drying schedule;*

Permit Conditions 4.2.7.1 (formerly 4.3.6):

> *For each load of lumber in each zone of the kiln, calculate and record the~~an~~ average temperature every 60 minutes using the temperature data collected by the computerized kiln management system required by Condition ~~3.4~~3.6 over the 60-minute period* [provided for clarification]. *Calculate and record the 60-minute kiln-wide average temperature using all load-specific, zone-specific 60-minute averages. Use the highest 60-minute kiln-wide average temperature measured during each batch to demonstrate compliance with Condition~~s~~ ~~3.2~~3.3;*

Permit Condition 4.2.7.2:

> *For each load of lumber in each zone of the kiln, calculate the instantaneous*

temperature differential by subtracting the set point temperature in the drying schedule from the dry bulb temperature of the heated air that exits the load of lumber. Record each temperature differential that exceeds 20°F and the corrective action taken to resolve the exceedance. This condition applies only when the drying schedule's set point temperature is greater than the ambient (outside) temperature.

Region 10 is deleting Condition 4.2 of the existing permit as the test requirement has been completed.

To provide clarification, Region 10 is revising Section 4 of the permit as follows.

Permit Condition 4.2 (formerly 4.3):

> *For LK-6, the Permittee shall install, calibrate, operate, and maintain, in accordance with manufacturer specifications, equipment and procedures necessary to measure, calculate and record (including the date and time of measurements or records and, if applicable, the company or entity that performed the analyses and the analytical techniques or methods used) the following for each batch of lumber dried:*

Permit Condition 4.2.7 (formerly 4.3.6):

> *~~Continuously measure t~~The dry bulb temperature of the heated air that exits each load of lumber in each zone of the kiln (°F), continuously measured…*

Permit Condition 4.2.8 (formerly 4.3.7):

> *Beginning the thirteenth hour of each batch's drying cycle, ~~continuously measure~~ the moisture content (%, dry basis) of a representative sample of boards (minimum of two courses[2]) in each load of lumber at a minimum of four equally-spaced locations (per load) along the length of the load using a capacitance-based in-kiln moisture measurement system, continuously measured…*

Permit Condition 4.5.3 (formerly 4.6.3):

> *Sawmill operating hours measured continuously and recorded daily and annually (hr/day and hr/yr); and*

Permit Condition 4.5.4 (formerly 4.6.4):

> *Lumber entering the planer measured continuously and recorded daily and annually (mbf/day and mbf/yr)~~; and~~.*

Permit Section 5 – Reporting Requirements

Region 10 is revising Section 5 of the permit in response to Permittee's Request 1 as follows.

Permit Condition 5.5.1:

> *The summary of monitoring performed to satisfy Condition 4.2.7.2 shall include the time and location of the occurrence of each temperature differential that exceeds 20°F and the corrective action taken to resolve the exceedance.*

Region 10 is revising Section 5 of the permit in response to Permittee's Request 3 as follows.

Permit Condition 5.4:

> *The Permittee shall promptly report to Region 10 by telephone (206-553-1331) deviations from permit conditions, including those attributable to upset conditions as defined in this permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Reports shall also include the company name, permit number, and permit condition number.* ~~*A written notice shall be submitted within 10 working days of the occurrence.*~~

Permit Condition 5.4.2.2:

> *For deviations of Conditions 3.2, 3.3, 3.4 and 3.5 that continue for more than two hours, the report must be made within 48 hours of the occurrence; or*

Permit Condition 5.4.3:

Within ten working days of the occurrence of a deviation as provided in Condition 5.4.2.1 and 5.4.2.2, the Permittee shall also submit a written notice, which shall include a narrative description of the deviation and updated information as listed in Condition 5.4, to EPA.

6. Public Participation

Public Notice and Comment

The EPA's procedures for issuing minor NSR permits are in 40 CFR 49.157, and include an opportunity for public comment and a hearing. As required in 40 CFR 49.157(b)(1)(ix), all draft minor NSR permits must be publicly noticed and made available for public comment for 30 days. For this draft permit, the public comment period begins on January 23, 2021 and ends on February 22, 2021. EPA will hold a public hearing on the draft permit as further explained below, if EPA determines that there is a significant degree of public interest in the draft permit.

40 CFR 49.157(a) requires reviewing authority to make the administrative record available for public inspection. For this draft permit, access to the record is available through the EPA's website at https://www.epa.gov/publicnotices/notices-search/location/Idaho. The public can request a copy of the administrative record or of individual documents in the record by contacting EPA as follows: by email to meyer.dan@epa.gov or by phone to Dan Meyer at (206) 553-4150.

Pursuant to 40 CFR 49.157(a), the record consists of the application and any supporting data furnished by the applicant, the draft permit, the Permit Analysis, all documents cited in the Permit Analysis, and other documents contained in the supporting file for the draft permit.

40 CFR 49.157(b)(1) requires the reviewing authority to give public notice that a draft permit has been prepared. The public notice must provide an opportunity for public comment and notice of a public hearing, if any, on the draft permit. For this draft permit, the notice is posted on the EPA's website at https://www.epa.gov/publicnotices/notices-search/location/Idaho. 40 CFR 49.157(b)(2) lists the information that must be included in the public notice.

40 CFR 49.157(c) explains how to submit comments and request a public hearing and 40 CFR 49.157(c) explains the requirements for holding a public hearing.

Any interested person may submit written comments on the draft permit by e-mail. If you believe

that any condition of the draft permit is inappropriate, you must raise all reasonably ascertainable issues with all reasonably available supporting arguments by submitting your written comments on or before the end of the comment period or providing oral comments at the public hearing if one is held. Any documents supporting your comments must be included in full and may not be incorporated by reference, unless they are already part of the administrative record for the draft permit or consist of tribal, state or federal statutes or regulations or other generally available referenced materials.

All written comments must be received by EPA on or before February 22, 2021 at r10_air_permits@epa.gov. Include "PotlatchDeltic" in the subject line of the email. If you are unable to submit comments via email, please call Dan Meyer at (206) 553-4150.

EPA will hold a public hearing on the draft permit pursuant to 40 CFR 49.157(c) if EPA determines, on the basis of requests, that there is a significant degree of public interest in the draft permit. Requests for a public hearing on the draft permit must be in writing and received by EPA by February 22, 2021. Requests must be sent by email to r10_air_permits@epa.gov. Include "PotlatchDeltic" in the subject line of the email. If you are unable to submit your request via email, please call Dan Meyer at (206) 553-4150. In your request, you must indicate the nature of the issues you wish to raise through oral testimony during the hearing. If a public hearing is held, EPA will provide 30-days advance notice of the date, time, and place of the public hearing, and the public comment period will be extended to the close of the public hearing.

Response to Public Comments and Permit Issuance

After the public comment period closes, the EPA will consider all comments in making a final permit decision. As required in 40 CFR 49.159(a), the EPA will notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. The final permit decision becomes effective 30 days after service of notice of the decision, unless (1) a later effective date is specified in the permit decision; (2) review of the final permit is requested under 40 CFR 49.159(d); or (3) no comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

7. Abbreviations, Acronyms and Symbols

AQIA	Air quality impact analysis
Bf	Board feet
Btu	British thermal units
CAA	Clean Air Act [42 U.S.C. section 7401 et seq.]
CFR	Code of Federal Regulations
CO	Carbon monoxide
EF	Emission factor
EJ	Environmental Justice
EPA	United States Environmental Protection Agency (also U.S. EPA)
ESA	Endangered Species Act
ESP	Electrostatic Precipitator
EU	Emission Unit
F	Fahrenheit
FARR	Federal Air Rules for Reservations
FDP	Fugitive Dust Plan

HAP	Hazardous air pollutant
Hr	Hour
Lb	Pound (lbs = pounds)
M	Thousand
Mm	Million
MACT	Maximum Achievable Control Technology (40 CFR Part 63)
mNSR	Minor New Source Review program
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants (40 CFR Parts 61 and 63)
NHPA	National Historical Preservation Act
NO_X	Nitrogen oxides
NSPS	New Source Performance Standard
PM	Particulate matter
PM10	Particulate matter less than or equal to 10 microns in aerodynamic diameter
PM2.5	Particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PSD	Prevention of significant deterioration
PTE	Potential to emit
Region 10	U.S. EPA, Region 10
RM	EPA Reference Method, as in EPA RM 5
SIC	Standard Industrial Code
SO_2	Sulfur dioxide
Tpy	Tons per year
VOC	Volatile organic compound

Appendix A

Calculation of PM2.5 Emission Factors and Pound-Per-Day and Ton-Per-Year Emission Limits for Emission Units PCWR-PM-SH and PCWR-PM-SD Required to "Reduce or Mitigate Impacts" Resulting from the Project Based upon Air Quality Impact Analysis

Lumber Kiln No. 6 Project
PotlatchDeltic - St. Maries Complex

Permit Analysis
Minor NSR Permit No. R10TNSR01802

St. Maries, Idaho

Summary of PM2.5 Emission Factors and Pound-Per-Day and Ton-Per-Year Emission Limits Required to "Reduce or Mitigate Impacts" Resulting from Lumber Kiln No. 6 Project. Limits are Based upon an Air Quality Impact Analysis Conducted Pursuant to 40 CFR 49.151(e)(5), 154(d)(3), 155(a)(1)(ii) and Appendix W to 40 CFR part 51.

PotlatchDeltic performed an air quality impact analysis to demonstrate that the project would not cause or contribute to either a 24-hour or annual PM2.5 NAAQS violation. The following table identifies two of the emission generating activities that are a part of the project along with the emission factors and allowable emissions employed to conduct the AQIA. Derivations for all of the values in the table are provided in the pages that follow.

Emission Unit ID	Existing / New	Control Device / Process Unit	PM2.5 Emission Factor	24-Hour NAAQS AQIA		Annual NAAQS AQIA	Permit Annual Allowable Emissions (tpy)
				Allowable Daily Emissions (lb/day)	Allowable Annual Emissions (tpy)	Allowable Annual Emissions (tpy)	
				[A]	[B] = [A] * X/2000	[C]	Lesser of [A] & [C]
Non-fugitive emissions							
4. PCWR-PM-SH	Existing	BH-2	0.00263 lb/mbf lumber entering planer	6.5302	**1.0187**	1.6244	1.0187
5. PCWR-PM-SD	Existing	BH-3	0.00229 lb/mbf lumber entering planer	5.7768	**0.9012**	1.4453	0.9012

Allowable annual emissions derived from the 24-hour NAAQS AQIA are calculated by multiplying the daily allowable emissions (lb/day) by 312 day/yr and dividing by 2000 lb/ton. 312 day/yr = (7488 hr/yr) * (day/24 hr). In calculating the emission rates to employ in the annual NAAQS AQIA, PotlatchDeltic assumed 7488 operating hours per year.

Values appearing in **BOLD** font is the lesser of the two AQIA-based annual allowable emission values (if the values are not equal).

The lesser of the two AQIA-based annual allowable emission values appears in the permit as an emission limit. It is not necessary to list both limits in the permit when compliance with one demonstrates compliance with the other.

Calculation of PM2.5 Pound-Per-Day Emission Limits Required to "Reduce or Mitigate Impacts" Resulting from the Project Based upon 24-Hour NAAQS Air Quality Impact Analysis. See 40 CFR 49.151(e)(5), 154(d)(3), 155(a)(1)(ii) and Appendix W to 40 CFR part 51.

4. Emission Unit: Planer shavings pneumatically conveyed to baghouse BH-2 (existing unit)

Emission Unit ID	Control Device
PCWR-PM-SH	BH-2

Calculated Emission Factor: 0.00263 lb/mbf lumber entering planer

calculated value	
Permit Allowable Daily Emissions	6.5302 lb/day
'16-'17 Actual Daily Emissions	- 3.4033 lb/day
24-hour NAAQS AQIA Emissions Increase	3.1269 lb/day
modeled emissions supporting June 21, 2019 minor NSR permit issuance	

Emission Factor Calculation

BH-2 2020 PM2.5 Source Test	Run 1 as reported	Run 1 as MDL	Run 2 as reported	Run 2 as MDL	Run 3 as reported	Run 3 as MDL	E-Test Report Reference
Acetone Rinse (mg)	0		0		0.1		Page 63
Filter (mg)	0.05		0.05		0		
Total sample recovery (mg)	0.05	1.35	0.05	1.35	0.1	1.35	
Sample volume (dscf)	25.011	25.011	24.623	24.623	25.132	25.132	Page 12
Stack flow rate (dscfm)	20,161	20,161	19,784	19,784	20,277	20,277	
Emissions (lb/hr)	0.00533	0.14395	0.00531	0.14348	0.01067	0.14408	Page 12 for reported #
Planer throughput (mbf/hr)	51.911	51.911	58.983	58.983	53.426	53.426	11/20/20 email
Emission factor (lb/mbf)	~~0.00010~~	0.00277	~~0.00009~~	0.00243	~~0.00020~~	0.00270	

Because the mass of PM2.5 collected during each sample run was less than the RM201A method detection limit (MDL) of 1.35 mg, total sample recovered is assumed equal to the MDL.
Run 1 example calculation: emission factor (lb/mbf) = (1.35 mg) * (lb/453592 mg) * (1/25.011 dscf) * (20,161 dscf/min) * (60 min/hr) * (hr/51.911 mbf) = 0.00277 lb/mbf
3-run average emission rate: 0.00263 lb/mbf

Ceiling for Maximum Allowable Emissions Assuming Compliance with FARR

Daily Emissions (lb/day)	Maximum Daily Throughput[1] (mbf/day)	Emission Factor (lb/mbf)
411.5160	1,811.25	0.2272

Calculation to approximate emission factor (lb/mbf) associated with FARR 0.1 gr/dscf limit
EF (lb/mbf) = (20,000 dscf/min) * (0.1 gr/dscf) * (lb/7,000 gr) * (60 min/hr) * (19.2 hr/1,449 mbf) = 0.2272 lb/mbf

'16-'17 Actual Emissions (Daily)

Daily Emissions (lb/day)	98th Percentile '16-'17 Daily Throughput[1] (mbf/day)	Emission Factor (lb/mbf)
3.4033	1,292	0.00263

[1] See June 18, 2018 EPA Region 10 memorandum entitled, "Calculation of 98th Percentile Daily Sawmill and Planer Mill Production and Shift Hours for 2016 and 2017 along with Average Ratio of Wood Residue to Lumber Production." The relevant portions of the memorandum have been transcribed at the back of this appendix. Planer Mill lumber throughput has been added. Planer throughput equals lumber into planer. On August 22, 2017, 1,449 mbf of lumber was planed during a 19.2-hour shift day. Maximum daily planer throughput rate = (1,449 mbf/19.2 hr) * (24 hr) = 1,811.25 mbf/day. The '16-'17 98th percentile daily planer throughput rate is 1,292 mbf/day.

Calculation of Emission Factor
Emission Factor = (RM201A PM2.5 Collected) * (Mass Unit Conversion Factor) * (1/ Sample Volume) * (Stack Flow Rate) * (Time Unit Conversion Factor) * (1/Planer Throughput Rate)
Calculation of Daily Emissions Increase
See Appendix D to Permit Analysis for June 21, 2019 minor NSR permit.
Calculation of Permit Allowable Daily Emissions
Emissions = Daily NAAQS AQIA Emissions Increase + '16-'17 Daily Actual Emissions
Calculation of '16-'17 Actual Daily Emissions
Emissions = (98th Percentile '16-'17 Daily Planer Throughput Rate) * (Emission Factor)

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5. Emission Unit: Planed lumber trimmer, trim ends chipper, breakdown hoist and infeed rolls dust generating activities (existing unit)

Emission Unit ID	Control Device
PCWR-PM-SD	BH-3

Calculated Emission Factor: 0.00229 lb/mbf lumber entering planer

calculated value	
Permit Allowable Daily Emissions	5.7768 lb/day
'16-'17 Actual Daily Emissions	- 2.9626 lb/day
24-hour NAAQS AQIA Emissions Increase	2.8142 lb/day
modeled emissions supporting June 21, 2019 minor NSR permit issuance	

Emission Factor Calculation

BH-3 2020 PM2.5 Source Test	Run 1 as reported	Run 1 as MDL	Run 2 as reported	Run 2 as MDL	Run 3 as reported	Run 3 as MDL	E-Test Report Reference
Acetone Rinse (mg)	0		0		0.15		Page 46
Filter (mg)	0		0		0		
Total sample recovery (mg)	0	1.35	0	1.35	0.15	1.35	
Sample volume (dscf)	21.486	21.486	22.468	22.468	23.789	23.789	Page 11
Stack flow rate (dscfm)	18,922	18,922	18,812	18,812	19,275	19,275	
Emissions (lb/hr)	0.00000	0.15726	0.00000	0.14952	0.01608	0.14469	Page 11 for reported #
Planer throughput (mbf/hr)	68.614	68.614	63.549	63.549	64.759	64.759	11/20/20 email
Emission factor (lb/mbf)	~~0.00000~~	0.00229	~~0.00000~~	0.00235	~~0.00025~~	0.00223	

Because the mass of PM2.5 collected during each sample run was less than the RM201A method detection limit (MDL) of 1.35 mg, total sample recovered is assumed equal to the MDL.
Run 1 example calculation: emission factor (lb/mbf) = (1.35 mg) * (lb/453592 mg) * (1/21.486 dscf) * (18,922 dscf/min) * (60 min/hr) * (hr/68.614 mbf) = 0.00229 lb/mbf
3-run average emission rate: 0.00229 lb/mbf

Ceiling for Maximum Allowable Emissions Assuming Compliance with FARR

Daily Emissions (lb/day)	Maximum Daily Planer Throughput[1] (mbf/day)	Emission Factor (lb/mbf)
390.8678	1,811.25	0.2158

Calculation to approximate emission factor (lb/mbf) associated with FARR 0.1 gr/dscf limit
EF (lb/mbf) = (19,000 dscf/min) * (0.1 gr/dscf) * (lb/7,000 gr) * (60 min/hr) * (19.2 hr/1,449 mbf) = 0.2158 lb/mbf

'16-'17 Actual Emissions (Daily)

Daily Emissions (lb/day)	98th Percentile '16-'17 Daily Planer Throughput[1] (mbf/day)	Emission Factor (lb/mbf)
2.9626	1,292	0.00229

[1] See June 18, 2018 EPA Region 10 memorandum entitled, "Calculation of 98th Percentile Daily Sawmill and Planer Mill Production and Shift Hours for 2016 and 2017 along with Average Ratio of Wood Residue to Lumber Production." The relevant portions of the memorandum have been transcribed at the back of this appendix. Planer Mill lumber throughput has been added. Planer throughput equals lumber into planer. On August 22, 2017, 1,449 mbf of lumber was planed during a 19.2-hour shift day. Maximum daily planer throughput rate = (1,449 mbf/19.2 hr) * (24 hr) = 1,811.25 mbf/day. The '16-'17 98th percentile daily planer throughput rate is 1,292 mbf/day.

Calculation of Emission Factor
Emission Factor = (RM201A PM2.5 Collected) * (Mass Unit Conversion Factor) * (1/ Sample Volume) * (Stack Flow Rate) * (Time Unit Conversion Factor) * (1/Planer Throughput Rate)
Calculation of Daily Emissions Increase
See Appendix D to Permit Analysis for June 21, 2019 minor NSR permit.
Calculation of Permit Allowable Daily Emissions
Emissions = Daily NAAQS AQIA Emissions Increase + '16-'17 Daily Actual Emissions
Calculation of '16-'17 Actual Daily Emissions
Emissions = (98th Percentile '16-'17 Daily Planer Throughput Rate) * (Emission Factor)

Calculation of PM2.5 Ton-Per-Year Emission Limits Required to "Reduce or Mitigate Impacts" Resulting from the Project Based upon Annual NAAQS Air Quality Impact Analysis. See 40 CFR 49.151(e)(5), 154(d)(3), 155(a)(1)(ii) and Appendix W to 40 CFR part 51.

4. Emission Unit: Planer shavings pneumatically conveyed to baghouse BH-2 (existing unit)

Emission Unit ID	Control Device
PCWR-PM-SH	BH-2

Calculated Emission Factor: 0.00263 lb/mbf lumber entering planer

calculated value	
Permit Allowable Annual Emissions	1.6244 ton/yr
'16-'17 Annual Actual Emissions	- 0.2583 ton/yr
Annual NAAQS AQIA Emissions Increase	1.3661 ton/yr
modeled emissions supporting June 21, 2019 minor NSR permit issuance	

Emission Factor Calculation

BH-2 2020 PM2.5 Source Test	Run 1 as reported	Run 1 as MDL	Run 2 as reported	Run 2 as MDL	Run 3 as reported	Run 3 as MDL	E-Test Report Reference
Acetone Rinse (mg)	0		0		0.1		Page 63
Filter (mg)	0.05		0.05		0		
Total sample recovery (mg)	0.05	1.35	0.05	1.35	0.1	1.35	
Sample volume (dscf)	25.011	25.011	24.623	24.623	25.132	25.132	Page 12
Stack flow rate (dscfm)	20,161	20,161	19,784	19,784	20,277	20,277	
Emissions (lb/hr)	0.00533	0.14395	0.00531	0.14348	0.01067	0.14408	Page 12 for reported #
Planer throughput (mbf/hr)	51.911	51.911	58.983	58.983	53.426	53.426	11/20/20 email
Emission factor (lb/mbf)	~~0.00010~~	0.00277	~~0.00009~~	0.00243	~~0.00020~~	0.00270	

Because the mass of PM2.5 collected during each sample run was less than the RM201A method detection limit (MDL) of 1.35 mg, total sample recovered is assumed equal to the MDL.
Run 1 example calculation: emission factor (lb/mbf) = (1.35 mg) * (lb/453592 mg) * (1/25.011 dscf) * (20,161 dscf/min) * (60 min/hr) * (hr/51.911 mbf) = 0.00277 lb/mbf
3-run average emission rate: 0.00263 lb/mbf

Ceiling for Maximum Allowable Emissions Assuming Compliance with FARR

Annual Emissions (ton/yr)	Maximum Annual Planer Throughput[1] (mbf/yr)	Emission Factor (lb/mbf)	Mass Unit Conversion Factor (ton/lb)
64.1965	565,110	0.2272	0.0005

Calculation to approximate emission factor (lb/mbf) associated with FARR 0.1 gr/dscf limit
EF (lb/mbf) = (20,000 dscf/min) * (0.1 gr/dscf) * (lb/7,000 gr) * (60 min/hr) * (19.2 hr/1,449 mbf) = 0.2272 lb/mbf

'16-'17 Actual Emissions (Annual)

Annual Emissions (ton/yr)	'16-'17 Average Annual Planer Throughput[1] (mbf/yr)	Emission Factor (lb/mbf)	Mass Unit Conversion Factor (ton/lb)
0.2583	196,093	0.00263	0.0005

[1] See June 18, 2018 EPA Region 10 memorandum entitled, "Calculation of 98th Percentile Daily Sawmill and Planer Mill Production and Shift Hours for 2016 and 2017 along with Average Ratio of Wood Residue to Lumber Production." The relevant portions of the memorandum have been transcribed in this appendix. Planer Mill lumber throughput has been added. Planer throughput equals lumber into planer. On August 22, 2017, 1,449 mbf of lumber was planed during a 19.2-hour shift day. Maximum annual planer throughput rate = (1,449 mbf/19.2 hr) * (24 hr) * (312 day/yr) = 565,110 mbf/yr. The '16-'17 average annual planer throughput rate is 196,093 mbf/yr.

Calculation of Emission Factor
Emission Factor = (RM201A PM2.5 Collected) * (Mass Unit Conversion Factor) * (1/ Sample Volume) * (Stack Flow Rate) * (Time Unit Conversion Factor) * (1/Production Rate)
Calculation of Annual Emissions Increase
See Appendix D to Permit Analysis for June 21, 2019 minor NSR permit.
Calculation of Permit Allowable Annual Emissions
Emissions = Annual NAAQS AQIA Emissions Increase + '16-'17 Annual Actual Emissions
Calculation of '16-'17 Annual Actual Emissions
Emissions = ('16-'17 Average Annual Planer Throughput) * (Emission Factor) * (Mass Unit Conversion Factor)

5. Emission Unit: Planed lumber trimmer, trim ends chipper, breakdown hoist and infeed rolls dust generating activities (existing unit)

Emission Unit ID	Control Device
PCWR-PM-SD	BH-3

Calculated Emission Factor[1]: 0.00229 lb/mbf lumber entering planer

calculated value	
Permit Allowable Annual Emissions	1.4453 ton/yr
'16-'17 Annual Actual Emissions	- 0.2248 ton/yr
Annual NAAQS AQIA Emissions Increase	1.2205 ton/yr
modeled emissions supporting June 21, 2019 minor NSR permit issuance	

Emission Factor Calculation

BH-3 2020 PM2.5 Source Test	Run 1 as reported	Run 1 as MDL	Run 2 as reported	Run 2 as MDL	Run 3 as reported	Run 3 as MDL	E-Test Report Reference
Acetone Rinse (mg)	0		0		0.15		Page 46
Filter (mg)	0		0		0		
Total sample recovery (mg)	0	1.35	0	1.35	0.15	1.35	
Sample volume (dscf)	21.486	21.486	22.468	22.468	23.789	23.789	Page 11
Stack flow rate (dscfm)	18,922	18,922	18,812	18,812	19,275	19,275	
Emissions (lb/hr)	0.00000	0.15726	0.00000	0.14952	0.01608	0.14469	Page 11 for reported #
Planer throughput (mbf/hr)	68.614	68.614	63.549	63.549	64.759	64.759	11/20/20 email
Emission factor (lb/mbf)	~~0.00000~~	0.00229	~~0.00000~~	0.00235	~~0.00025~~	0.00223	

Because the mass of PM2.5 collected during each sample run was less than the RM201A method detection limit (MDL) of 1.35 mg, total sample recovered is assumed equal to the MDL.
Run 1 example calculation: emission factor (lb/mbf) = (1.35 mg) * (lb/453592 mg) * (1/21.486 dscf) * (18,922 dscf/min) * (60 min/hr) * (hr/68.614 mbf) = 0.00229 lb/mbf
3-run average emission rate: 0.00229 lb/mbf

Ceiling for Maximum Allowable Emissions Assuming Compliance with FARR

Annual Emissions (ton/yr)	Maximum Annual Planer Throughput[1] (mbf/yr)	Emission Factor (lb/mbf)	Mass Unit Conversion Factor (ton/lb)
60.9754	565,110	0.2158	0.0005

Calculation to approximate emission factor (lb/mbf) associated with FARR 0.1 gr/dscf limit
EF (lb/mbf) = (19,000 dscf/min) * (0.1 gr/dscf) * (lb/7,000 gr) * (60 min/hr) * (19.2 hr/1,449 mbf) = 0.2158 lb/mbf

'16-'17 Actual Emissions (Annual)

Annual Emissions (ton/yr)	'16-'17 Average Annual Planer Throughput[1] (mbf/yr)	Emission Factor (lb/mbf)	Mass Unit Conversion Factor (ton/lb)
0.2248	196,093	0.00229	0.0005

[1] See June 18, 2018 EPA Region 10 memorandum entitled, "Calculation of 98th Percentile Daily Sawmill and Planer Mill Production and Shift Hours for 2016 and 2017 along with Average Ratio of Wood Residue to Lumber Production." The relevant portions of the memorandum have been transcribed in this appendix. Planer Mill lumber throughput has been added. Planer throughput equals lumber into planer. On August 22, 2017, 1,449 mbf of lumber was planed during a 19.2-hour shift day. Maximum annual planer throughput rate = (1,449 mbf/19.2 hr) * (24 hr) * (312 day/yr) = 565,110 mbf/yr. The '16-'17 average annual planer throughput rate is 196,093 mbf/yr.

Calculation of Emission Factor
Emission Factor = (RM201A PM2.5 Collected) * (Mass Unit Conversion Factor) * (1/ Sample Volume) * (Stack Flow Rate) * (Time Unit Conversion Factor) * (1/Production Rate)
Calculation of Annual Emissions Increase
See Appendix D to Permit Analysis for June 21, 2019 minor NSR permit.
Calculation of Permit Allowable Annual Emissions
Emissions = Annual NAAQS AQIA Emissions Increase + '16-'17 Annual Actual Emissions
Calculation of '16-'17 Annual Actual Emissions
Emissions = ('16-'17 Average Annual Planer Throughput) * (Emission Factor) * (Mass Unit Conversion Factor)

Calculation of 98th Percentile Planer Mill Daily Lumber Input and Shift Hours for 2016-2017

447 Days of Operation (2-year period)
9 98th percentile day
1292 98th percentile planer mill daily production (Mbf/day)
20.2 98th percentile planer mill daily shift hours (hr/day)

Sawmill and Planer Mill 2016-2017 Operating Data

Date	Shift Hours (hrs/day)	Planer Mill Lumber into Planer (Mbf/day)	12-Month Rolling Total (Mbf/yr)
1/1/2016	0	0	
1/2/2016	0	0	
1/3/2016	0	0	
1/4/2016	19.2	949	
1/5/2016	19	910	
1/6/2016	19.2	888	
1/7/2016	19.2	542	
1/8/2016	0	0	
1/9/2016	0	0	
1/10/2016	0	0	
1/11/2016	19.2	306	
1/12/2016	20	633	
1/13/2016	19.2	1,071	
1/14/2016	19.2	722	
1/15/2016	0	0	
1/16/2016	0	0	
1/17/2016	0	0	
1/18/2016	19.2	926	
1/19/2016	19.2	937	
1/20/2016	19.2	858	
1/21/2016	19.2	1,272	
1/22/2016	0	0	
1/23/2016	0	0	
1/24/2016	0	0	
1/25/2016	19.2	1,089	
1/26/2016	19.2	977	
1/27/2016	19.1	924	
1/28/2016	19.2	927	
1/29/2016	0	0	
1/30/2016	0	0	Month
1/31/2016	0	0	13931
2/1/2016	19.2	963	Rolling Total
2/2/2016	19.2	838	13,931
2/3/2016	19.2	696	
2/4/2016	18.3	966	
2/5/2016	0	0	
2/6/2016	0	0	
2/7/2016	0	0	
2/8/2016	19.2	984	
2/9/2016	19.2	1,187	
2/10/2016	19.2	958	
2/11/2016	19.2	824	
2/12/2016	0	0	
2/13/2016	0	0	
2/14/2016	0	0	
2/15/2016	19.2	962	
2/16/2016	19.1	871	
2/17/2016	19.2	981	
2/18/2016	0	0	
2/19/2016	0	0	
2/20/2016	0	0	
2/21/2016	0	0	
2/22/2016	19.2	1,057	
2/23/2016	19.2	920	
2/24/2016	19.2	810	
2/25/2016	8	337	
2/26/2016	0	0	
2/27/2016	0	0	
2/28/2016	0	0	Month
2/29/2016	19.2	1,159	14513
3/1/2016	19.2	972	Rolling Total
3/2/2016	19.2	436	28,444
3/3/2016	0	0	
3/4/2016	0	0	

3/5/2016	0	0	
3/6/2016	0	0	
3/7/2016	19.2	907	
3/8/2016	19.2	738	
3/9/2016	19.2	938	
3/10/2016	0	0	
3/11/2016	0	0	
3/12/2016	0	0	
3/13/2016	0	0	
3/14/2016	19.2	1,015	
3/15/2016	19.2	1,266	
3/16/2016	19.2	1,008	
3/17/2016	16	636	
3/18/2016	0	0	
3/19/2016	0	0	
3/20/2016	0	0	
3/21/2016	19.2	776	
3/22/2016	19.2	950	
3/23/2016	19.2	940	
3/24/2016	19.2	1,122	
3/25/2016	19.2	799	
3/26/2016	0	0	
3/27/2016	0	0	
3/28/2016	0	0	
3/29/2016	0	0	
3/30/2016	0	0	Month
3/31/2016	0	0	12,503
4/1/2016	0	0	Rolling Total
4/2/2016	0	0	40,947
4/3/2016	0	0	
4/4/2016	19.2	845	
4/5/2016	19.2	678	
4/6/2016	19.2	1,059	
4/7/2016	19.2	1,231	
4/8/2016	0	0	
4/9/2016	0	0	
4/10/2016	0	0	
4/11/2016	19.2	828	
4/12/2016	19.2	901	
4/13/2016	19.2	877	
4/14/2016	1.5	19	
4/15/2016	0	0	
4/16/2016	0	0	
4/17/2016	0	0	
4/18/2016	19.2	1,202	
4/19/2016	19.2	1,292	
4/20/2016	19.2	328	
4/21/2016	19.2	468	
4/22/2016	19.2	864	
4/23/2016	0	0	
4/24/2016	0	0	
4/25/2016	19.2	769	
4/26/2016	19.2	1,022	
4/27/2016	19.4	697	
4/28/2016	19.2	883	
4/29/2016	19	965	Month
4/30/2016	0	0	14928
5/1/2016	0	0	Rolling Total
5/2/2016	19.2	702	55,875
5/3/2016	19.2	1,252	
5/4/2016	19.2	1,020	
5/5/2016	19.2	825	
5/6/2016	19.2	883	
5/7/2016	0	0	
5/8/2016	0	0	
5/9/2016	19.2	925	
5/10/2016	19.2	742	
5/11/2016	19.2	1,048	
5/12/2016	19.2	1,041	
5/13/2016	8	319	
5/14/2016	0	0	
5/15/2016	0	0	
5/16/2016	19.4	999	
5/17/2016	19.2	896	
5/18/2016	19.2	980	

5/19/2016	12.2	608	
5/20/2016	7	281	
5/21/2016	0	0	
5/22/2016	0	0	
5/23/2016	19.2	863	
5/24/2016	19.2	912	
5/25/2016	20	1,089	
5/26/2016	19.2	584	
5/27/2016	0	0	
5/28/2016	0	0	
5/29/2016	0	0	
5/30/2016	0	0	Month
5/31/2016	19.2	1,163	17,132
6/1/2016	19	812	Rolling Total
6/2/2016	19.2	1,003	73,007
6/3/2016	0	0	
6/4/2016	0	0	
6/5/2016	0	0	
6/6/2016	19.2	927	
6/7/2016	19.2	937	
6/8/2016	19.2	742	
6/9/2016	19.2	567	
6/10/2016	0	0	
6/11/2016	0	0	
6/12/2016	0	0	
6/13/2016	19.2	995	
6/14/2016	19.2	957	
6/15/2016	19.2	821	
6/16/2016	19.2	828	
6/17/2016	0	0	
6/18/2016	0	0	
6/19/2016	0	0	
6/20/2016	19.2	1,117	
6/21/2016	19.2	1,090	
6/22/2016	19.2	1,088	
6/23/2016	19.2	910	
6/24/2016	19.2	739	
6/25/2016	0	0	
6/26/2016	0	0	
6/27/2016	19.2	778	
6/28/2016	19.2	1,027	
6/29/2016	19.2	806	Month
6/30/2016	0	0	16,144
7/1/2016	0	0	Rolling Total
7/2/2016	0	0	89,151
7/3/2016	0	0	
7/4/2016	0	0	
7/5/2016	19.2	1,244	
7/6/2016	19.2	771	
7/7/2016	19.2	958	
7/8/2016	19.2	785	
7/9/2016	0	0	
7/10/2016	0	0	
7/11/2016	19.2	714	
7/12/2016	19.2	946	
7/13/2016	19.2	1,000	
7/14/2016	19.2	914	
7/15/2016	0	0	
7/16/2016	0	0	
7/17/2016	0	0	
7/18/2016	19.2	814	
7/19/2016	19.2	869	
7/20/2016	19.2	1,153	
7/21/2016	19.2	938	
7/22/2016	19.2	793	
7/23/2016	0	0	
7/24/2016	0	0	
7/25/2016	19.2	660	
7/26/2016	19.2	932	
7/27/2016	19.2	797	
7/28/2016	19.2	784	
7/29/2016	0	0	
7/30/2016	0	0	Month
7/31/2016	0	0	15072
8/1/2016	19.2	1,161	Rolling Total

8/2/2016	19.2	1,163	104,223
8/3/2016	19.2	711	
8/4/2016	19.2	691	
8/5/2016	0	0	
8/6/2016	0	0	
8/7/2016	0	0	
8/8/2016	19.2	694	
8/9/2016	19.2	664	
8/10/2016	19.2	790	
8/11/2016	19.2	766	
8/12/2016	19.2	964	
8/13/2016	0	0	
8/14/2016	0	0	
8/15/2016	19.2	1,154	
8/16/2016	19.2	842	
8/17/2016	19.2	747	
8/18/2016	19.2	833	
8/19/2016	0	0	
8/20/2016	0	0	
8/21/2016	0	0	
8/22/2016	19.2	679	
8/23/2016	19.2	924	
8/24/2016	18.8	912	
8/25/2016	19.2	809	
8/26/2016	19.2	1,015	
8/27/2016	0	0	
8/28/2016	0	0	
8/29/2016	19.2	821	
8/30/2016	19.2	834	Month
8/31/2016	19.2	851	18,025
9/1/2016	19.2	862	Rolling Total
9/2/2016	0	0	122,248
9/3/2016	0	0	
9/4/2016	0	0	
9/5/2016	0	0	
9/6/2016	19.2	996	
9/7/2016	19.2	892	
9/8/2016	19.2	1,039	
9/9/2016	12.9	711	
9/10/2016	0	0	
9/11/2016	0	0	
9/12/2016	19.2	878	
9/13/2016	19.2	1,010	
9/14/2016	19.2	906	
9/15/2016	19.2	1,110	
9/16/2016	0	0	
9/17/2016	0	0	
9/18/2016	0	0	
9/19/2016	19.2	1,007	
9/20/2016	19.2	946	
9/21/2016	19.2	765	
9/22/2016	19.2	1,027	
9/23/2016	0	0	
9/24/2016	0	0	
9/25/2016	0	0	
9/26/2016	19.2	767	
9/27/2016	19.2	956	
9/28/2016	19.2	745	
9/29/2016	19.2	916	Month
9/30/2016	0	0	15533
10/1/2016	0	0	Rolling Total
10/2/2016	0	0	137,781
10/3/2016	19.2	1,046	
10/4/2016	19.3	894	
10/5/2016	19.2	756	
10/6/2016	19.2	944	
10/7/2016	0	0	
10/8/2016	0	0	
10/9/2016	0	0	
10/10/2016	19	986	
10/11/2016	19.2	929	
10/12/2016	19.2	968	
10/13/2016	0	0	
10/14/2016	0	0	
10/15/2016	0	0	

10/16/2016	0	0	
10/17/2016	19.2	1,020	
10/18/2016	19.2	853	
10/19/2016	19.2	943	
10/20/2016	19.2	812	
10/21/2016	0	0	
10/22/2016	0	0	
10/23/2016	0	0	
10/24/2016	19.2	841	
10/25/2016	19.2	957	
10/26/2016	9.6	369	
10/27/2016	19.2	936	
10/28/2016	0	0	
10/29/2016	0	0	
10/30/2016	0	0	Month
10/31/2016	19.2	919	14,173
11/1/2016	19.2	1,185	Rolling Total
11/2/2016	19.2	798	151,954
11/3/2016	19.2	471	
11/4/2016	0	0	
11/5/2016	0	0	
11/6/2016	0	0	
11/7/2016	19.2	864	
11/8/2016	19.2	878	
11/9/2016	19.2	799	
11/10/2016	19.2	1,044	
11/11/2016	0	0	
11/12/2016	0	0	
11/13/2016	0	0	
11/14/2016	19.2	974	
11/15/2016	19.2	1,000	
11/16/2016	19.2	742	
11/17/2016	19.2	857	
11/18/2016	19.2	846	
11/19/2016	0	0	
11/20/2016	0	0	
11/21/2016	20.2	861	
11/22/2016	20.2	868	
11/23/2016	17.2	907	
11/24/2016	0	0	
11/25/2016	0	0	
11/26/2016	0	0	
11/27/2016	0	0	
11/28/2016	19.2	887	
11/29/2016	19.2	812	Month
11/30/2016	19.2	833	15,626
12/1/2016	19.2	991	Rolling Total
12/2/2016	0	0	167,580
12/3/2016	0	0	
12/4/2016	0	0	
12/5/2016	19.2	811	
12/6/2016	19.2	829	
12/7/2016	19.2	731	
12/8/2016	19.2	1,204	
12/9/2016	0	0	
12/10/2016	0	0	
12/11/2016	0	0	
12/12/2016	19.2	915	
12/13/2016	19.2	814	
12/14/2016	19.2	733	
12/15/2016	19.2	1,014	
12/16/2016	19.2	735	
12/17/2016	0	0	
12/18/2016	0	0	
12/19/2016	19.2	694	
12/20/2016	19.2	737	
12/21/2016	19.2	833	
12/22/2016	19.2	720	
12/23/2016	0	0	
12/24/2016	0	0	
12/25/2016	0	0	
12/26/2016	0	0	
12/27/2016	19.2	664	
12/28/2016	19.2	649	
12/29/2016	19.2	755	

12/30/2016	0	0	Month
12/31/2016	0	0	13829
1/1/2017	0	0	Rolling Total
1/2/2017	0	0	181,409
1/3/2017	19.2	682	
1/4/2017	18.7	557	
1/5/2017	19.2	881	
1/6/2017	19.2	881	
1/7/2017	0	0	
1/8/2017	0	0	
1/9/2017	19.2	807	
1/10/2017	19.2	771	
1/11/2017	19.2	636	
1/12/2017	19.2	1,129	
1/13/2017	19.2	897	
1/14/2017	0	0	
1/15/2017	0	0	
1/16/2017	19.2	965	
1/17/2017	19.2	908	
1/18/2017	19.2	649	
1/19/2017	19.2	805	
1/20/2017	19.2	838	
1/21/2017	0	0	
1/22/2017	0	0	
1/23/2017	19.2	770	
1/24/2017	19.2	986	
1/25/2017	19.2	661	
1/26/2017	19.2	869	
1/27/2017	0	0	
1/28/2017	0	0	
1/29/2017	0	0	
1/30/2017	19.2	1,101	Month
1/31/2017	19.2	980	16773
2/1/2017	19.2	846	12-M Rolling Total
2/2/2017	19.2	764	184,251
2/3/2017	9.7	406	
2/4/2017	0	0	
2/5/2017	0	0	
2/6/2017	19.2	949	
2/7/2017	19.2	797	
2/8/2017	19.2	525	
2/9/2017	19.2	961	
2/10/2017	9.6	431	
2/11/2017	0	0	
2/12/2017	0	0	
2/13/2017	19.2	827	
2/14/2017	19.2	854	
2/15/2017	19.2	945	
2/16/2017	19.2	1,103	
2/17/2017	0	0	
2/18/2017	0	0	
2/19/2017	0	0	
2/20/2017	19.2	1,064	
2/21/2017	19.2	795	
2/22/2017	19.2	868	
2/23/2017	19.2	928	
2/24/2017	0	0	
2/25/2017	0	0	
2/26/2017	0	0	
2/27/2017	19.2	809	Month
2/28/2017	19.2	735	14,607
3/1/2017	19.2	783	12-M Rolling Total
3/2/2017	19.2	1,288	184,345
3/3/2017	0	0	
3/4/2017	0	0	
3/5/2017	0	0	
3/6/2017	19.2	1,054	
3/7/2017	19.2	852	
3/8/2017	19.2	998	
3/9/2017	19.2	781	
3/10/2017	19.2	902	
3/11/2017	0	0	
3/12/2017	0	0	
3/13/2017	19.2	795	
3/14/2017	19.2	1,151	

3/15/2017	19.2	1,167	
3/16/2017	19.2	894	
3/17/2017	0	0	
3/18/2017	0	0	
3/19/2017	0	0	
3/20/2017	19.2	1,108	
3/21/2017	19.2	793	
3/22/2017	19.2	808	
3/23/2017	19.2	875	
3/24/2017	0	0	
3/25/2017	0	0	
3/26/2017	0	0	
3/27/2017	19.2	1,107	
3/28/2017	19.1	877	
3/29/2017	19.2	1,088	
3/30/2017	19.2	844	Month
3/31/2017	0	0	18,165
4/1/2017	0	0	12-M Rolling Total
4/2/2017	0	0	190,007
4/3/2017	19.2	951	
4/4/2017	19.2	834	
4/5/2017	19.2	884	
4/6/2017	19.2	974	
4/7/2017	0	0	
4/8/2017	0	0	
4/9/2017	0	0	
4/10/2017	19.2	796	
4/11/2017	19.2	852	
4/12/2017	19.1	1,072	
4/13/2017	19.2	1,256	
4/14/2017	19.2	846	
4/15/2017	0	0	
4/16/2017	0	0	
4/17/2017	19.2	905	
4/18/2017	19.2	900	
4/19/2017	19.2	860	
4/20/2017	19.2	772	
4/21/2017	0	0	
4/22/2017	0	0	
4/23/2017	0	0	
4/24/2017	19.2	660	
4/25/2017	19.2	1,038	
4/26/2017	19.2	896	
4/27/2017	19.2	1,259	
4/28/2017	19.2	1,017	
4/29/2017	0	0	Month
4/30/2017	0	0	16772
5/1/2017	19.2	823	12-M Rolling Total
5/2/2017	19.2	826	191,851
5/3/2017	19.2	963	
5/4/2017	19.2	982	
5/5/2017	0	0	
5/6/2017	0	0	
5/7/2017	0	0	
5/8/2017	19.2	850	
5/9/2017	19.2	742	
5/10/2017	19.2	961	
5/11/2017	19.2	894	
5/12/2017	17.6	1,133	
5/13/2017	0	0	
5/14/2017	0	0	
5/15/2017	19.2	842	
5/16/2017	19.2	719	
5/17/2017	19.2	935	
5/18/2017	9.6	490	
5/19/2017	0	0	
5/20/2017	0	0	
5/21/2017	0	0	
5/22/2017	19.2	1,080	
5/23/2017	19.2	949	
5/24/2017	19.2	756	
5/25/2017	19.2	782	
5/26/2017	8	442	
5/27/2017	0	0	
5/28/2017	0	0	

5/29/2017	0	0	
5/30/2017	19.2	1,245	Month
5/31/2017	19.2	792	17,206
6/1/2017	19.2	833	12-M Rolling Total
6/2/2017	0	0	191,925
6/3/2017	0	0	
6/4/2017	0	0	
6/5/2017	19.2	1,068	
6/6/2017	18.7	953	
6/7/2017	19.2	905	
6/8/2017	19.2	911	
6/9/2017	19.2	990	
6/10/2017	0	0	
6/11/2017	0	0	
6/12/2017	15.1	547	
6/13/2017	9.6	441	
6/14/2017	19.2	743	
6/15/2017	19.2	808	
6/16/2017	19.2	863	
6/17/2017	0	0	
6/18/2017	0	0	
6/19/2017	20.2	621	
6/20/2017	20.2	1,324	
6/21/2017	20.2	1,220	
6/22/2017	20.2	1,443	
6/23/2017	20.2	1,049	
6/24/2017	9.6	504	
6/25/2017	0	0	
6/26/2017	19.2	834	
6/27/2017	19.2	987	
6/28/2017	19.2	657	
6/29/2017	19.2	769	Month
6/30/2017	16	651	19,121
7/1/2017	0	0	12-M Rolling Total
7/2/2017	0	0	194,902
7/3/2017	0	0	
7/4/2017	0	0	
7/5/2017	19.2	786	
7/6/2017	19.2	525	
7/7/2017	19.2	782	
7/8/2017	0	0	
7/9/2017	0	0	
7/10/2017	19.2	977	
7/11/2017	19.2	999	
7/12/2017	19.2	795	
7/13/2017	19.2	858	
7/14/2017	19.2	1,120	
7/15/2017	4.8	167	
7/16/2017	0	0	
7/17/2017	19.2	1,007	
7/18/2017	19.2	532	
7/19/2017	19.2	1,360	
7/20/2017	19.2	619	
7/21/2017	19.2	857	
7/22/2017	0	0	
7/23/2017	0	0	
7/24/2017	19.2	900	
7/25/2017	19.2	851	
7/26/2017	19.2	641	
7/27/2017	19.2	1,305	
7/28/2017	19.2	813	
7/29/2017	0	0	
7/30/2017	0	0	Month
7/31/2017	19.2	988	16882
8/1/2017	19.2	910	12-M Rolling Total
8/2/2017	19.2	1,011	196,712
8/3/2017	19.2	870	
8/4/2017	19.2	764	
8/5/2017	0	0	
8/6/2017	0	0	
8/7/2017	19.2	838	
8/8/2017	19.2	848	
8/9/2017	19.2	1,127	
8/10/2017	19.2	1,180	
8/11/2017	19.2	1,014	

8/12/2017	0	0	
8/13/2017	0	0	
8/14/2017	19.2	846	
8/15/2017	19.2	967	
8/16/2017	19.2	989	
8/17/2017	19.2	831	
8/18/2017	19.2	991	
8/19/2017	8	329	
8/20/2017	0	0	
8/21/2017	20.8	916	
8/22/2017	19.2	1,449	
8/23/2017	19.2	1,117	
8/24/2017	19.2	1,089	
8/25/2017	19.2	1,069	
8/26/2017	0	0	
8/27/2017	0	0	
8/28/2017	19.2	657	
8/29/2017	19.2	938	
8/30/2017	19.2	579	Month
8/31/2017	19.2	971	22,300
9/1/2017	0	0	12-M Rolling Total
9/2/2017	0	0	200,987
9/3/2017	0	0	
9/4/2017	0	0	
9/5/2017	19.2	979	
9/6/2017	19.2	765	
9/7/2017	19.2	1,330	
9/8/2017	19.2	1,160	
9/9/2017	0	0	
9/10/2017	0	0	
9/11/2017	19.2	697	
9/12/2017	19.2	820	
9/13/2017	19.2	815	
9/14/2017	19.2	959	
9/15/2017	18.7	726	
9/16/2017	0	0	
9/17/2017	0	0	
9/18/2017	19.2	637	
9/19/2017	19.2	940	
9/20/2017	19.2	925	
9/21/2017	19.2	893	
9/22/2017	19.2	1,005	
9/23/2017	0	0	
9/24/2017	0	0	
9/25/2017	20.2	996	
9/26/2017	20.2	1,065	
9/27/2017	20.8	941	
9/28/2017	20.2	1,113	
9/29/2017	20.2	967	Month
9/30/2017	0	0	17733
10/1/2017	0	0	12-M Rolling Total
10/2/2017	20.2	789	203,187
10/3/2017	20.2	1,054	
10/4/2017	20.2	923	
10/5/2017	20.2	1,282	
10/6/2017	19.7	1,380	
10/7/2017	0	0	
10/8/2017	0	0	
10/9/2017	19.2	929	
10/10/2017	19.2	950	
10/11/2017	19.2	727	
10/12/2017	19.2	555	
10/13/2017	19.2	644	
10/14/2017	0	0	
10/15/2017	0	0	
10/16/2017	19.2	885	
10/17/2017	19.2	1,053	
10/18/2017	19.2	251	
10/19/2017	19.2	1,226	
10/20/2017	19.2	891	
10/21/2017	0	0	
10/22/2017	0	0	
10/23/2017	19.2	813	
10/24/2017	19.2	1,080	
10/25/2017	19.2	905	

10/26/2017	19.2	942	
10/27/2017	0	0	
10/28/2017	0	0	
10/29/2017	0	0	
10/30/2017	19.2	759	Month
10/31/2017	19.2	703	18741
11/1/2017	19.2	1,056	12-M Rolling Total
11/2/2017	19.2	857	207,755
11/3/2017	9.6	240	
11/4/2017	0	0	
11/5/2017	0	0	
11/6/2017	19.2	569	
11/7/2017	19.2	913	
11/8/2017	19.2	987	
11/9/2017	19.2	665	
11/10/2017	19.2	1,200	
11/11/2017	0	0	
11/12/2017	0	0	
11/13/2017	19.2	1,055	
11/14/2017	19.2	1,069	
11/15/2017	19.2	774	
11/16/2017	19.2	1,135	
11/17/2017	19.2	946	
11/18/2017	0	0	
11/19/2017	0	0	
11/20/2017	19.2	859	
11/21/2017	15.1	556	
11/22/2017	19.1	952	
11/23/2017	0	0	
11/24/2017	0	0	
11/25/2017	0	0	
11/26/2017	0	0	
11/27/2017	19.2	1,023	
11/28/2017	19.2	1,010	
11/29/2017	19.2	839	Month
11/30/2017	19.2	861	17566
12/1/2017	19.2	1,305	12-M Rolling Total
12/2/2017	0	0	209,695
12/3/2017	0	0	
12/4/2017	19.2	905	
12/5/2017	19.2	802	
12/6/2017	19.2	905	
12/7/2017	19.2	1,147	
12/8/2017	7.7	449	
12/9/2017	0	0	
12/10/2017	0	0	
12/11/2017	19.2	959	
12/12/2017	19.2	958	
12/13/2017	19.2	759	
12/14/2017	17.7	809	
12/15/2017	15.3	706	
12/16/2017	0	0	
12/17/2017	0	0	
12/18/2017	19.2	559	
12/19/2017	19.2	817	
12/20/2017	19.2	879	
12/21/2017	19.2	756	
12/22/2017	0	0	
12/23/2017	0	0	
12/24/2017	0	0	
12/25/2017	0	0	
12/26/2017	19.2	591	
12/27/2017	19.2	771	
12/28/2017	19.2	833	
12/29/2017	0	0	
12/30/2017	0	0	Month
12/31/2017	0	0	14,910

12-M Rolling Total
210,776

Average Month
16,341

Average 12-month period
196092.5

EU: BH-2 Date: 03/17/20

Run	RM201A Time Start/Finish Times	Port 1 Sampling Duration (min)	Port 1 Start/Finish Times (hr:min:sec)	Port 1 Planer Throughput (bf)	Port 2 Sampling Duration (min)	Port 2 Start/Finish Times (hr:min:sec)	Port 2 Planer Throughput (bf)	Planer Throughput Rate over Run (bf/hr)
1	16:22 - 17:38	32.75	16:22:00 - 16:54:45	35598	31.25	17:06:45 - 17:38:00	19774	51911
2	17:55 - 19:04	31.25	17:55:00 - 18:26:15	32724	31.75	18:32:15 - 19:04:00	29208	58983
3	19:13 - 20:24	32.00	19:13:00 - 19:45:00	30640	32.25	19:51:45 - 20:24:00	26570	53426

EU: BH-3 Date: 03/17/20

Run	RM201A Time Start/Finish Times	Port 1 Sampling Duration (min)	Port 1 Start/Finish Times (hr:min:sec)	Port 1 Planer Throughput (bf)	Port 2 Sampling Duration (min)	Port 2 Start/Finish Times (hr:min:sec)	Port 2 Planer Throughput (bf)	Planer Throughput Rate over Run (bf/hr)
1	10:10 - 11:28	29.50	10:10:00 - 10:39:30	39148	29.75	10:58:15 - 11:28:00	28608	68614
2	12:05 - 13:14	29.25	12:05:00 - 12:34:15	31464	30.5	12:43:30 - 13:14:00	31820	63549
3	13:42 - 14:52	30.5	13:42:00 - 14:12:30	33456	30.25	14:21:45 - 14:52:00	32112	64759